# "SELF-CARE" AS IT RELATES TO POVERTY STATUS AND AGE IN U.S. ADULTS: AMERICAN TIME USE SURVEY

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**Abstract**

Taking an active role in one's health is moving to the forefront of evolving healthcare. Health disparities, especially by poverty status and age, may be the result of differing capabilities to invest time in self-care behaviors. The purpose of this study is to fill the knowledge gap about time spent on self-care by age and poverty status. The 2006-2008 American Time Use Survey data by The Bureau of Labor and Statistics and The U.S. Census Bureau was used. The total time spent (minutes) was computed for personal self-care activities, including: sleeping; health-related self-care; food preparation and cleanup; eating and drinking; grocery shopping; caring for household members; exercising; and general personal care. Daily activity records were collected for 35,178 American adults ages 20 years and older. Participants were separated to be analyzed into two age groups: 20-64 years and 65 years and older. Participants were stratified into three household income categories based their proportion of the federal poverty rate: low-income (<130%); moderate income (130 - <185%); and upper income (≥185%). The mean differences in time spent by age and income categories were compared using a two-way analysis of variance. The low-income group spent twice as much time per day on health-related self-care than the other income categories ($P<0.05$), with older Americans spending two-fold greater amounts of time across all income categories. High-income adults spent significantly more time exercising than the other groups, but none met current physical activity recommendations. Low-income adults spent significantly more time in food preparation and clean-up, regardless of age category. Considerable differences exist in the amounts and types of self-care behaviors by age and poverty status. Programs and interventions to address health disparities involved with the time one spends on self-care may improve the lives and health statuses of Americans.

**Introduction**

The United States' health status has declined in the past several years due to a variety of setbacks. Six million more people are living in poverty than were in 2004 (1). Also, even though the U.S. spends more money on medical expenses per capita than any other industrialized nation, they fail to provide health care to all of its citizens (1). More than two-thirds (68.8%) of American adults are considered to be overweight or obese (2). With that, it is no surprise that in 2010, the percentage of non-institutionalized adults who reported their health as fair or poor ranged from 6% of those 18-44 years of age to 28% of those 75 years and over (3).

The time one invests in self-care may be the root of the country's health and disease rates. A great deal of research focuses on the specifics of self-care. For example, the recommended amounts of time for sleep and exercise as well as food and drink guidelines are well studied (4-14). Other components that encompass self-care are not addressed as readily to determine the correlation between the time spent on personal care in relation to health and disease.

Poor health has long been identified with low income. Being able to breast-feed, work, engage in a healthy, active lifestyle, grow food, earn a living or feed a family all depend on a baseline level of good health (15). Chronic disease prevalence is much more concentrated for the poor than for those who live above the poverty line. Poor people are more vulnerable for several reasons, including greater exposure to risks and decreased access to health services (16). It is fundamentally important for individuals living in poverty to have access to care and to be educated on preventive self-care activities in order to optimize their health outcomes. This disparity in chronic disease by poverty may be a function of self-care behaviors.

One of the next steps to improving these unfavorable health statistics in the U.S. clearly has to have a focus on the fine details of what is making them fall behind. Evidence exists for

differences in dietary intakes, but the other self-care aspects are less well known. Therefore, more data is needed to fill the knowledge gaps for self-care and poverty among adults. This can include the analysis of minute-by-minute activities and making associations about how that time can be adjusted for better overall health.

In conjunction with some of the varying components of personal care, the American Time Use Survey data can be used for further research to gain another perspective of the topic of time use relative to poverty and age. By identifying relationships between time devoted to self-care, poverty and age, this research can act as an important piece to the puzzle to target, create and improve health interventions and practice in a variety of health care fields. Physicians, allied health professionals and researchers who are involved in developing effective practice and improving health outcomes of underprivileged populations can use this data to make purposeful alterations to interventions and education.

**Related Research**

The definition of self-care has long been debated. There are many variables related to the care of oneself that can be accounted for. It is important to note that the current definition of self-care has been shaped by many social, economic and political factors and is embedded in diverse theoretical perspectives (17). A comprehensive definition of self-care needs to include as many aspects as possible including: aspects related to health; illness and disability; general outcomes; the performer of self-care; the action of self-care; the relation to healthcare professionals and the relation to the healthcare system (18). Therefore, the time that one takes performing activities such as personal care activities, health related self-care, sleeping, exercising, preparing food and cleanup, eating and drinking, grocery shopping and caring for household members can account for a substantial portion of this self-care definition.

The time spent on personal care may vary, especially in relation to poverty status and age. According to the United States Census Bureau, poverty can be defined as a family's total income as less than the family's threshold, then that family and every individual in it is considered in poverty (19). Poverty remains an ongoing issue that needs to be critically and proactively addressed. Healthy People 2020 identified one of the social determinants of health as socioeconomic conditions, such as concentrated poverty (4). It is clear that action has and needs to continually be taken to improve poverty and its outcomes.

Many research studies have been done to evaluate specific aspects of personal care as they relate to poverty. However, the current research supporting the examination of *time* spent on self-care relative to poverty and age has gaps to fill. The actual amount of time spent on a self-care activity that one spends on a daily basis is important when designing best practice interventions.

Despite the void in data regarding the time component of general self-care, the related research questions that have been studied are important to analyze for an adequate appraisal of the questions at hand. One similar study also used the American Time Use Survey. In 2011, they evaluated the amount of time adults spend on very specific health-related self-care (eg, taking insulin, taking vitamins, dressing a wound, etc.). They used data from the 2003-2007 and the 2006-2007 ATUS data because only in the last year was health analyzed. With this data, they evaluated the odds of engaging in self-care as a function of age, sex, race, and other characteristics. Their results concluded that for Americans 25 years of age and older, 6.6% engaged in health-related self-care each day. Compared with persons in excellent health, those in fair health were 2.0 times as likely (95% CI, 1.4–2.8) and those in poor health were 3.7 times as likely (95% CI, 2.5–5.6) to report engaging in self-care. Also, they found that time spent on

health-related self-care is disproportionately distributed across the population, with a larger amount of time reported by those in poor health (3.6 hours/week) (20).

There are many intertwining facets of self-care. The amount of sleep that one obtains plays a major role in health maintenance and positively contributes to self-care efforts. Although sleep is a requirement for the body to function properly, approximately 50 to 70 million Americans suffer from a disorder of sleep and wakefulness. This obstructs daily functioning and has adverse impacts on one's health. One statistic states that almost 20 percent of all serious car accident injuries in the general population are associated with driver sleepiness, independent of alcohol effects (5).

The U.S. Institute of Medicine Committee on Sleep Medicine and Research evaluated current sleep data in response to a lack of awareness among the general public and health care professionals regarding the importance of sleep. In this study, their objective was to formulate recommendations to increase sleep education and awareness in a number of disciplines including academic health centers and public health arenas as well as to encourage more research to be conducted to improve our knowledge of the subject (5). In addition, sleep can improve learning and memory, metabolism and weight, safety, mood, decrease cardiovascular health and disease prevalence (6).

The amount and quality of sleep has also been specifically studied in older adults. Researchers targeted 182 healthy seniors ages 70-92 years to log a sleep diary for one week. They were to record the time spent in bed and their total sleep time. Average late bedtimes were associated with shorter time spent in bed and with shorter total sleep time (21). Another study that focused on sleep based on the living conditions of adults ages 55 and older (independently living (IL), service home (SH) and nursing home (NH)). The actual decision to go to bed was free for 99% of the IL subjects, 96% of the SH subjects and 81% of the NH and

differed significantly between groups. Only 19% of the NH group could decide freely to rise, compared with the SH (72%) and the IL elderly (98%). Overall, subjective habitual sleep quality revealed that SH residents considered themselves significantly worse sleepers than did the IL subjects and the NH residents (13).

Another key aspect of self-care includes physical activity. A consistent goal of the Healthy People initiatives is concerned with improving health through physical activity. Exercise can lower the risk of early death, coronary heart disease, stroke, hypertension, type 2 diabetes, depression, and falls (8). The CDC states that adults whose family income is above the poverty level are more likely to meet the 2008 Physical Activity Guideline for aerobic activity than adults whose family income is at or near the poverty level (7).

The *Physical Activity Guidelines for Americans* were created in 2008 as a merger of the major research findings on the health benefits of physical activity. Various age group guidelines are made including: children and adolescents; adults; older adults; and adults with disabilities. For adults, they advise that do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous intensity aerobic activity. Slightly different recommendations are made for older adults. For example, they address the need for them to be aware of limitations related to possible chronic diseases and fitness levels they might have. Also, if they are at risk for falling, they should perform activities that improve their balance (11). One Harvard University study notes that these guidelines do not fit the mold for everyone since the amount of exercise one needs depends on genes, diet, amount of muscle and fat carried, level of fitness, and capacity for exercise (10).

The risks in not providing your body with an appropriate amount of exercise can lead to many health issues. Adequate physical activity is necessary for proper self-care. However, only

about 15 percent of adults get the amount of exercise they need (8). It has become a worldwide issue associated with chronic illness and dire consequences. Personal motivation and the social and physical environments in which people live are major factors of physical activity (14). Another study evaluated 144 adults and found the proportions in terms of stages of change for exercise. Their results concluded that 34% were pre-contemplating, 7% contemplating, 10% preparing, 14% taking action, and 35% maintaining physical activity (13).

In addition to exercise, dietary consumption is a critical measure as well. Overconsumption has developed into a major issue for the U.S. The Centers for Disease Control and Prevention consider a Body Mass Index (BMI) between 25 and 29.9 as overweight, which accounts for 33.35% (22) of the U.S. 20 years or older (23). They also define obesity as having a BMI at or above 30 (22) accounting for 35.9% of adults (23). Overweight and obesity can be contributed in part to an imbalance of energy intake (calories) (24). The Academy of Nutrition and Dietetics agrees with the definition that food insecurity as a limited or intermittent access to nutritionally adequate, safe, and acceptable foods accessed in socially acceptable ways (25). Food insecurity and diet quality have always been important for health maintenance, even though food costs and access have been unstable for the whole population in recent years. "Food poverty is intrinsically linked to inadequate income, poor dietary and lifestyle habits, and health inequalities, placing the 'food poor' at higher risk of developing chronic diseases such as hypertension, diabetes and cardiovascular disease (9)." Therefore, food quality and intake have a major impact on health outcomes.

An important component of dietary self-care is grocery shopping. One study found that higher income households spent significantly more money per person when eating at home and eating out compared to the lower income households. This group-randomized trial collected their data from individuals through a clinic and home visit along with food purchase receipt

collection. They also found that the lower income group spent significantly more money on sugar sweetened beverages and eating at carry out restaurants than the higher income (26). With the limited financial resources of individuals living in poverty, more energy dense food choices may be made to capitalize on the calories obtained per dollar (27). Therefore, it is crucial that the funds spent on food are used wisely to promote health and prevent disease.

Another self-care activity that is highly related to personal self-care is the time one takes in caring for other individuals in the household. Over 44 million Americans (21% of U.S. adult population) act as caregivers in some form or another (28). Many times, this responsibility can induce harmful stress on the caregiver. Exhaustion, depression, irritability, physical symptoms and even drug or alcohol abuse are possible (28). Many resources are available for individuals to cope with these situations. In terms of caring for individuals who are ill or disabled, meal delivery, transportation services, adult-day care, in-home respite and self-care tips are available (28-29). As for childcare, there are resources also available for parents and guardians in times of stress and anxiety (30).

An examination of the existing data reveals that there is a need to go another step further in the analysis in the attempt to find correlations between different variables related to general self-care. Poverty continues to be an issue in the U.S. and may continue to be if measures are not taken to educate and improve the use of daily tasks and time allocation. From the evaluation of time spent sleeping to exercising and grooming oneself, relationships can be pinpointed to possibly create or advance existing interventions for individuals in poverty.

**Methods**

*Purpose and Objectives:* With elevated poverty rates, it is important to identify areas that can improve such conditions and better one's use of time in terms of personal care. The

purpose of this study was to examine the relationship between the amounts of time spent on self-care with poverty status and age. To do so, the following research questions were explored:

- How much time does the average person spend on self-care?
- How does the time caring for oneself compare across age groups?
- How does the time caring for oneself compare across income levels?
- Is there a pattern of age and poverty in self-care behaviors among US adults?

*Data Source*: In order to conduct the research at hand, the American Time Use Survey (ATUS) was used. ATUS was sponsored by the Bureau of Labor and Statistics and conducted by the U.S. Census Bureau. The ATUS was the first federally administered, annual survey on time use in the United States. Beginning in 2003 with the first data in 2004, ATUS's purpose was to collect data regarding when, where and with whom activities take place for Americans. A household was eligible to participate after the completion of the final month of the Current Population Survey. Data was collected in a one-time telephone interview. Prior to the interview, they received a letter and pamphlet explaining the purpose of the study and notifying them of the day they were called. The interview took place between a trained coder and one member of the household over the age of 15 years who told the coder how they used their time. The coder recorded the individual's activities in a database that is comprised of eighteen activity categories. Each of the categories was broken down into subgroups. In the case that an individual did not have a telephone, they were given a toll-free number to call to report their data.

ATUS has conducted over 136,000 interviews which have been used in numerous projects on a variety of topics. Researchers, journalists, educators, sociologists, economists, government lawmakers, lawyers and individuals are all users of time-use information. Soon, fifty other

countries will have established time-use surveys. This will also be a major resource in comparing activities on a global scale (31).

*Sample Data:* The 2006-2008 American Time Use Survey data sampled 35,178 adults in the United States. Using this primary information, adults were stratified into two age groups, 20-64 years and ages 65 years and older. The respondents reported family income during their telephone survey, which was computed as a percent of the federal poverty rate. Individuals were recorded into subcategories: low-income (<130%); moderate income (130- <185%); and upper income (≥185%). We calculated poverty rate during data preparation in order to assign each participant to an income status group.

*Data Preparation:* ATUS categorized activities into 18 major time-use lexicons. Within the main groups, activity sub-categories were also coded for further clarity and detail. For our study, we grouped particular lexicons together in order to sum activities for cumulative purposes. The initial activity group studied was total personal care activities. For analysis, all sub-categories of the Personal Care Activities lexicon were combined (01). Sub-groups of the Personal Care Activity lexicon were also evaluated individually including Sleeping (0101) and Health-Related Self Care (0103). Refer to Appendix 1 for the activities included in Health-Related Self Care. See table 1 below for coding lexicon designations.

| |
|---|
| **01 Personal Care Activities** |
| **0101 Sleeping** |
| 10101 Sleeping |
| 10102 Sleeplessness |
| 0102 Grooming |
| 10201 Washing, dressing and grooming oneself |
| **0103 Health-related self care** |
| 10301 Health-related self care |
| 0104 Personal Activities |
| 10401 Personal/Private activities |
| 0105 Personal Care Emergencies |
| 10501 Personal emergencies |
| 0199 Personal care, n.e.c.* |

**Table 1: coding lexicon designations in ATUS used for total Personal Care Activities, Sleeping and Health-Related Self Care.**

The other activity categories for analysis included time spent Preparing Food and Drink, Presentation, and Clean-up, under Household Activities (lexicon 0202); Caring For and Helping Household Members (lexicon 03); Grocery Shopping (070101); Eating and Drinking (lexicon 11); and Sports, Exercise and Recreation (lexicon 1301).

All of the subcategories under lexicon 0202 were included in the evaluation. Refer to table 2 below for coding lexicon designations.

| | |
|---|---|
| **02 Household Activities** | |
| | 0202 Food & Drink Prep., Presentation, & Clean-up |
| | 20201 Food and drink preparation |
| | 20202 Food presentation |
| | 20203 Kitchen and food clean-up |
| | 20299 Food & drink prep, presentation, & clean-up, n.e.c.* |
| **03 Caring For & Helping Household Members** | |
| | 0301 Caring For & Helping HH Children |
| | 0302 Activities Related to HH Children's Education |
| | 0303 Activities Related to HH Children's Health |
| | 0304 Caring for Household Adults |
| | 0305 Helping Household Adults |
| | 0399 Caring For & Helping NonHH Members |
| **07 Consumer Purchases** | |
| | 0701 Shopping (Store, Telephone, Internet) |
| | 070101 Grocery Shopping |
| **11 Eating and Drinking** | |
| | 1101 Eating and Drinking |
| | 1102 Waiting associated with eating & drinking |
| | 1199 Eating and Drinking, n.e.c.* |
| **13 Sports, Exercise, & Recreation** | |
| | 1301 Participating in Sports, Exercise, and Recreation |

**Table 2: coding lexicon designations in ATUS used for Household activities, Caring For and Helping Household Member, Grocery Shopping, Eating and Drinking and Sports, Exercise and Recreation.**

Based on data collected from the survey, each individual was assigned to their appropriate age and income group. The mean amounts of time in minutes per day were computed for all categories and subcategories across all groups. Then, the data was appropriately stratified and read for analysis.

*Data Analysis:* Descriptive epidemiology was used from the ATUS to describe grocery shopping, exercising, caring for and helping household members, food preparation and cleanup, eating and drinking, and overall personal care activities as well as the sub-categories of sleeping and health-related self-care. Age and income descriptive statistics were used to describe the demographic profiles across the activity categories. With this data, the means and standard

errors were computed to assess the amounts of time spent on each act by total and age compared to poverty status. An analysis of variance (ANOVA) was used to examine significant differences in time spent performing tasks by age and income categories. After significance was determined, post hoc analysis identified significant means within age and income groups.

This data was tabulated for analysis using SPSS (version 21.0). All analyses were conducted using the SPSS Complex Samples (version 21.0) to account for the stratified, multi-staged sampling technique used in subject selection.

**Results**

The means and standard errors of the amounts of time spent on each activity relative to the three income levels are presented in Table 1. Time spent eating and food preparation and clean up were the greatest health-related self-care activities across all groups. Significant differences were found between all income levels for time spent on personal care activities, health-related personal self-care, food preparation and cleanup and eating and drinking. The lowest income group (<130%) spent the most time on health-related personal self-care activities and food preparation and cleanup. They also spent significantly more time sleeping than the two higher income groups (130%-185% and >185%). However, the highest income group (>185%) spent the most time eating and drinking as well as exercising. There were no significant differences found between any of the three income levels in the time spent grocery shopping.

| Income Level | < = 130% (n=6,572) | | 130-185% (n=4,135) | | > 185% (n=23,439) | | | |
|---|---|---|---|---|---|---|---|---|
| **Activities** | Mean | SE | Mean | SE | Mean | SE | **P** | Differences |
| All personal care activities | 606.1 | 2.6 | 578.4 | 2.7 | 560.5 | 1.0 | **<0.001** | all |
| Sleeping | 558.8 | 2.4 | 534.0 | 2.5 | 514.4 | 1.0 | **<0.001** | 1v2,1v3 |
| Health-related Personal self-care | 9.8 | 1.1 | 5.7 | 0.9 | 4.3 | 0.4 | **<0.001** | all |
| Household activities: Food preparation and cleanup | 42.8 | 1.0 | 37.8 | 1.1 | 31.5 | 0.4 | **<0.001** | all |
| Total time in primary eating and drinking | 61.6 | 0.8 | 68.1 | 1.0 | 73.0 | 0.4 | **<0.001** | all |
| Purchasing goods and services: Grocery shopping | 6.6 | 0.3 | 6.8 | 0.4 | 6.8 | 0.2 | **0.177** | none |
| Caring for and helping household members | 34.3 | 1.1 | 33.4 | 1.3 | 28.6 | 0.5 | **<0.001** | 1v3, 2v3 |
| Participating in Sports, Exercise, and Recreation | 9.7 | 0.6 | 10.2 | 0.8 | 18.7 | 0.5 | **<0.001** | 1v3, 2v3 |

**Table 1: Mean differences in the time spent on health-related self-care behaviors by income category**

Differences in the mean amounts of time spent doing health-related self-activities were compared across to two age categories (20-64 years and 65 years and older, Table 2). Younger adults spent considerably more time caring for other household members. Individuals between the ages of 20-64 years spent significantly less time sleeping, eating and drinking, food preparation and cleanup, health-related self-care and on total personal care activities compared to the over 65 years group. There were no significant differences between the two age categories in terms of time spent exercising and grocery shopping. Many of these findings may reveal an improvable pattern in age and poverty self-care behaviors among U.S. adults.

| Age Group | 20-64 years (n=28,559) | | 65 years and older (n=6,619) | | |
|---|---|---|---|---|---|
| **Activity** | Mean | SE | Mean | SE | P |
| All personal care activities | 561.19 | 1.008 | 585.09 | 1.996 | <0.001 |
| Sleeping | 515.70 | .937 | 536.73 | 1.805 | <0.001 |
| Health-related personal self-care | 4.94 | .381 | 9.13 | .892 | 0.001 |
| Food preparation and cleanup | 35.05 | .401 | 40.73 | .958 | 0.012 |
| Eating and drinking | 88.35 | 3.187 | 98.71 | 4.726 | <0.001 |
| Purchasing goods and services: Grocery shopping | 7.01 | .150 | 7.33 | .327 | 0.947 |
| Caring for and helping household members | 38.00 | .527 | 6.04 | .614 | <0.001 |
| Participating in Sports, Exercise, and Recreation | 16.75 | .397 | 14.60 | .797 | 0.345 |

**Table 2: Mean differences in the time spent on health-related self-care behaviors by age**

**Discussion**

Some of the original hypotheses were congruent with the results, while others challenged them and some of the related research. Therefore, various questions have resulted after analyzing the eight activities between two age groups and three income categories.

It was initially hypothesized that the lowest income category (<130% of the poverty level) would spend less time on Food Preparation and Cleanup since lower income households spent significantly less money on raw foods, like fruits and vegetables, compared to higher income households (26). However, the <130% group spent the most time on food prep and cleanup. There are many plausible factors that may contribute to this result. For example, lower socioeconomic groups of individuals may have less space to store their food, causing more difficulty in food preparation and cleanup. They also may not have kitchen tools necessary to quickly complete cooking and cleanup tasks such as a knife, peeler, or dishwasher. Also, their means for heating food may be more time consuming. For instance, to save on electric and gas costs, they may cook their food on an outdoor charcoal grill.

In terms of age differences within Food Preparation and Cleanup, it is unclear why the older population spent significantly more time on this category. One reasoning may be due to the fact that age 65 was a common retirement age in the U.S. when more time may have been allocated to leisure activities such as preparing food (32). The older category may perform activities such as cooking slower or more home-cooked than the younger age group. Another hypothesis is that the 20-64 age group may be cooking more pre-prepared meals more often than the over 65 year old age group. However, one interesting point to consider what each age group considers as the definition of "cooking."

The category of Eating and Drinking showed more time spent for households above 185% of the poverty line and 65 years and older. These findings support the known trend of higher income individuals eating outside of the home where others prepared the food (32). This also may explain why the higher income households spent less time on food preparation. One explanation as to why the older adults may have spent more time on eating and drinking may be due to dental mechanical issues, which could slow down their ability to consume food. Also, as an older population, they may spend more time eating out to prevent loneliness due to the higher likelihood of being widowed and being unwilling to cook for one.

Grocery shopping, on the other hand, showed no differences across any of the stratified groups. This result was not expected due to higher income adults have more dollars to spend on food, which could have increased their time spent grocery shopping (26). One potential intervention for the general category of food based on the findings is to increase healthy food selection (at home and eating out) and meal preparation education for individuals in the two lower income categories. Additional research to improve such interventions would be to discover the differences in time spent on traveling to the grocery store between groups as well as what they were shipping for. Grocery shopping trips of episodic nature due to a greater

disposable income, little storage space, or access are all importance factors in the grocery shopping process.

The Health-Related Self Care and the total Personal Care Activities categories showed some interesting results that are greatly supported by current data. The lowest income groups (<130% and 130%-185%) may be spending more time on health-related self-care and personal care activities due to the increased likelihood of chronic disease in poverty (16). Chronic conditions require attention and can have a major impact on how an individual uses their time. In addition, the lower income populations may be self-treating health issues to maintain a higher level of quality-of-life instead of seeking professional care due to cost or access. The brutal cycles of poverty and chronic disease are usually difficult to break without intervention because of limited health care access and increased risk (16). Therefore, by fully educating patients with chronic disease(s) on their condition(s) and helping them access available resources in the community, the cycle may be slowed, if not broken. Resources such as an on-call nurse or health care profession available to answer questions about chronic disease maintenance may improve chronic disease prevalence among individuals living in poverty as well.

Adults from the highest income households spent significantly less time Caring for and Helping Household Members compared to the low and middle-income adults. In addition, the younger group spent six times more minutes caring for others. In relation to health-related self care, caregivers may compromise their own health due to their responsibilities of caring for others. As for comparing this category to food preparation, individuals caring for other household members may have less time to spend of food preparation and cleanup, but also may spend more time due to the varying needs of those they are caring for. For instance, a low-sodium diet or pureed foods may take additional time to prepare than other foods. Also, those

who care for other suffering from an illness may have relatively elevated sense of their own health status. There are several ways to address the younger population and lower incomes' substantial amounts of time spent on this activity. As previously discussed, more support groups could be developed and promoted in the community for caregivers of children or elderly individuals to provide encouragement and to act as a social outlet (28-29). Also, increasing awareness among clinicians to address caregiver stress management with their patients who assume these roles can improve the health implications that may result if not managed.

In terms of Sports, Exercise, and Recreation, no groups met current activity recommendations, even though the highest income level (>185%) spent significantly more time than the two lower income groups. Only 15% of U.S. adults engage in regular exercise, so this result was not surprising (13). One contributing factor to this result may be due to safety factors. For example, adults in lower socioeconomic conditions may live in more dangerous neighborhoods with high crime levels. Going outdoors or simply having access to safe-walking paths or recreational facilities may be a barrier to physical exercise. Although funding is limited, improved access to recreational or exercise facilities at a reduced rate for lower income individuals could increase time spent being physically active. Also, investing in side-walks in the community may help this low statistic as well.

One important finding was that younger Americans spent the greatest amount of time exercising and the least amount of time on health-related self-care behaviors. This trend may again suggest exercise's positive influence on improving health outcomes (8). Therefore, more encouragement and education about the importance of exercise needs to be emphasized in the clinical setting. Additional research may need to be conducted on more effective ways to motivate all individuals to exercise more often.

Contradictory to other studies, it was found that the 65 years and older age group spent significantly more time Sleeping than the 20-64 year old group. Research suggested that the older population spent less time sleeping because they showed a greater risk of being diagnosed with a sleeping disorder (12) although 75% of adults encounter sleep difficulties a few nights a week (6). The other result indicated that the <130% poverty level spent significantly more time sleeping than either the 130-185% or the >185% group. More research may need to be conducted to pinpoint primary reasons behind this result. For example, the time spent between groups on the quality of sleeplessness versus high quality (rapid eye movement) sleep may have been helpful to decipher.

The answers to these questions may be found in deeper time-use, age and poverty research. For example, additional demographic data like gender, household size and more specific age categories may have been beneficial to specific intervention opportunities. Other limitations of the study included: differences in health literacy and health care access as well as being a cross sectional study. Also, the number of health-related self care activities performed compared to the amount of time spent on each may have provided more detailed information for projected solutions.

In conclusion, considerable differences exist in this multidimensional study regarding the amounts and types of self-care behaviors by age and poverty status. Using these findings along with related and more detailed research, various programs and strategies to address health disparities involved with the time one spends on self-care may improve the lives and health statuses of Americans.

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**Appendix:**

| Health-related self care activities |
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| doing childbirth exercises |
| dressing a wound |
| giving oneself a shot |
| taking insulin |
| putting ice on injury |
| gargling for sore throat |
| resting because of illness |
| taking medicine |
| doing stress management exercises |
| meditating (not religious) |
| taking vitamins |
| resting because of injury |
| taking cough drops |
| bandaging ankle |
| giving oneself an injection |
| testing blood sugar level |
| applying ointment |
| changing oxygen |
| exercising or therapy for medical reasons |